

## CLAIMS

What is claimed is:

1. A lithography system for processing a substrate comprising:
  - a mask chamber having one or more vacuum valves for isolating the mask chamber from the rest of the lithography system;
  - a gas supply line adapted to provide an inert gas to the mask chamber; and
  - a vacuum pump adapted to evacuate the mask chamber.
2. The lithography system of claim 1 wherein the one or more vacuum valves are closed to isolate the mask chamber from the rest of the lithography system before venting the mask chamber with the inert gas provided by the gas supply line.
3. The lithography system of claim 1 wherein the inert gas is nitrogen.
4. The lithography system of claim 1 wherein the lithography system is an EUV system.
5. The lithography system of claim 1 further comprising:
  - a chuck mounted in the mask chamber for holding a reticle, the chuck further comprising:
    - a contact surface for holding a back surface of the reticle to the chuck; and
    - a plurality of openings in the chuck, each opening having a first end and a second end, the first end of each opening being coupled to

the gas supply line, and the second end of each opening being coupled to the contact surface of the chuck.

6. The lithography system of claim 5 wherein the gas supply line provides the inert gas to the contact surface of the chuck and the back surface of the reticle via the plurality of openings in the chuck, for releasing the reticle from the chuck.

7. The lithography system of claim 5 wherein the chuck is an electrostatic chuck.

8. A chuck for holding a reticle during processing, the chuck comprising:

a gas supply line adapted to provide an inert gas to the chuck.;

a contact surface for holding a back surface of the reticle to the chuck; and

a plurality of openings in the chuck, each opening having a first end and a second end, the first end of each opening being coupled to the gas supply line, and the second end of each opening being coupled to the contact surface of the chuck.

9. The chuck of claim 8 wherein the gas supply line provides the inert gas to the contact surface of the chuck and the back surface of the reticle via the plurality of openings in the chuck, for releasing the reticle from the chuck.

10. The chuck of claim 8 wherein the inert gas is nitrogen.

11. The chuck of claim 8 wherein the chuck is mounted in an EUV system.

12. The chuck of claim 8 wherein the chuck is an electrostatic chuck.

13. A method for providing a vacuum isolated environment in a lithography system for dechucking a reticle, the method comprising the steps of:

providing a mask chamber having one or more vacuum valves for isolating the mask chamber from the lithography system;

closing the one or more vacuum valves to isolate the mask chamber from the rest of the lithography system;

providing an inert gas to the mask chamber after the mask chamber has been isolated to dechuck the reticle.

14. The method of claim 13 wherein the inert gas is nitrogen.

15. The method of claim 13 wherein the lithography system is an EUV system.

16. The method of claim 13 further comprising the steps of:

providing a chuck mounted in the mask chamber for holding the reticle, the chuck having a contact surface for holding a back surface of the reticle to the chuck; and

providing a plurality of openings in the chuck, each opening having a first end and a second end, the first end of each opening being coupled to the gas supply line, and the second end of each opening being coupled to the contact surface of the chuck.

17. The method of claim 16 further comprising the step of:

providing an inert gas to the contact surface of the chuck and the back surface of the reticle via the plurality of openings in the chuck for releasing the reticle from the chuck.